

Laptop Assistant and Alert Notifier

Lalitha L A^{1*}, Meghana A K², Meghana M P³, Monisha R⁴, Nayana R⁵

^{1,2,3,4,5}Department of Computing and Information Technology, REVA University, Karnataka, India

Corresponding Author: lalithala@reva.edu.in, Tel.: +91-99861-11787

DOI: <https://doi.org/10.26438/ijcse/v7si14.270273> | Available online at: www.ijcseonline.org

Abstract— Artificial Intelligence is a multidisciplinary field whose aim is to automate activities that currently require human intelligence. Generally, Artificial Intelligence systems function based on a Knowledge Base of facts and guidelines that characterize the system's domain of proficiency. The factors of a Knowledge Base consist of independently legitimate (or at least achievable) chunks of records. In computer systems the information is stored historically in form of files. File is considered as a primary entity for keeping the information. The system has to automatically organize and utilize this information to solve the specific problems that it encounters. Devices or modules built on Artificial Intelligence are generally human friendly and easier to use. Building few modules which are interlinked and are accessed through one specific module is the idea behind our proposed system. Each module that is built has its own functionality and specification in generating output. One such module is dedicated for file security purpose.

Keywords—Access to Folders, File Monitoring, Interactive Quiz, News, Personal Assistant, Speech Recognition

I. INTRODUCTION

Creation of natural human assets to communicate with the computer is currently one of the greatest challenges of modern science. The speech input facility is the most user- friendly way, followed by improvement of speech reputation based on sophisticated technologies. Speech Recognition which is also called as automatic speech recognition (ASR) and voice recognition acknowledges the spoken words and phrases and converts them to a device-readable format. By converting spoken audio into textual content, speech recognition technology let users to govern digital devices by speaking instead of using traditional equipment such as keystrokes, buttons, keyboards etc.

Artificial Intelligence is the technology enabling machines to analyze from experience and perform human-like tasks. This application mainly plays two operations. Primarily it is referred as personal assistant, which takes voice commands from user as input and performs the operation based on user commands. The potential to recognize spoken and written language. e.g. actual-time translation of spoken and written languages, actual-time transcription, intelligent assistants, voice control. Secondary operation, it can continuously monitor the private directories, if there is breach in system then a message is sent to the admin regarding breach.

II. RELATED WORK

File System Monitoring for Windows [1]

Every organization's asset is its data and data are stored in files which are maintained by file systems. Therefore, it is a valid position of an organization to maintain its File System secure. There is large amount of changes that are made on daily basis in these files with the aid of different users. Hidden among these changes can be the few that are illegitimate and can cause harm to organization. So, File System Monitoring becomes necessary. While many such tracking tools are available for UNIX systems [2,3], very little is done for Windows system. We have developed a File System Monitoring application for Windows operating system which monitors all Program Files of type document and sheet under directory selected with the aid of administrator. While there were many options available for implementing such a software, the most suitable way of doing so is via exploiting native compatibility of C#.

Artificial Intelligence Technique for Speech Recognition Based on Neural Networks [4]

This article is all about the reduction of the value of artificial neural networks for speech recognition tasks. Speech recognition is a process of extracting textual content or a few other form of meaning from speech input. Speech analytics can be taken into consideration because of the part of the voice processing, which allows in changing human speech into digital form. Speech analysis processes can also be called digital speech coding. The problem of temporary distortions is that it became that speech comparison samples

of the identical class can be used best if the timescale conversions of one them. In other words, say the same sound with different durations, and Furthermore, the various parts of the sounds may have additionally have different duration as part of a class effect allows you to talk about local distortions of scale along the time axis [5,6,7].

A Review on Speech Recognition Technique [8]

The Speech is most prominent and primary mode of communication among of human being. Speech has capacity of being important mode of interaction with system. This paper is all about overview of major technological perspective and appreciation of the fundamental progress of speech recognition and also gives overview of the technique developed in each stage of speech recognition. Along with these the paper also helps in choosing the method along with their relative pros and cons. The paper concludes with the decision on feature direction for developing technique in human and computer interface system [9,10,11].

III. METHODOLOGY

This application has different modules, namely – Personal Assistant, Search file/folder, File security mode, News field and Game field. The programming for each module is done using C# language.

Personal Assistant- This is the key module of the application as it has access to all other modules. This module is activated through voice based command and also the interaction between other modules without need of network. To build this module first specifying the order in which words and phrases must be spoken to be recognized is done. Then combine the words from multiple lists and phrases to be recognized. Link those words/phrases with other grammars. Assigning a weight to an alternative word or phrase to increase or decrease the likelihood that it will be used to match speech input. Include optional words or phrases. Use special regulations that assist clear out unspecified or unanticipated input, such as random speech that doesn't match the grammar, or background noise. Use semantics to define what speech recognition matches on your app. Specify pronunciations, either inline in a grammar or via a link to a lexicon.

Search file/folder- Searching for files by way of name and through the contents of the files on Windows 10 is different from Windows 8. There are many distinct ways to search files on Windows. For ex: File Explorer, DOS command prompt, etc. To avoid complexity while searching for files or folder, this application has capability to accept the names of directories through voice based commands and process the operation.

File security mode- Securing the files from unauthorized access is what given importance here in this module. After the

activation of this mode, all the files or folders present in the specified path will be continuously by the code. If any changes identified will be notified immediately through SMS to the concerned mobile number. SMS will be sent by the dongle which is connected to the system. By replying to the same will take the action. While monitoring it notifies only for four main changes- renaming, deleting, copying existing files and downloading new file.

News field- This module updates about daily day news with an option allowing to enter the URL of the required newspaper. News headlines will be shown on the screen, on selecting the required headline the audio will be the output which briefs about the content. This module works only when system is connected to internet.

Game field- This is an extra module for entertainment purpose. And this is a question and answer type game. A general knowledge question with four options will be provided and the player should pick the right option. If right option is not picked, then the module itself highlights the right option. Even this module needs network connection because the questions are generated through online.

IV. RESULTS AND DISCUSSION

As the functionality of each module differs the output also differs from each other. The pop up window shows the output of each module that is how the output is identified. The figures below show the snapshot of outputs. There can be no output generated from file security module until there is any unauthorized access to files. But there will be a continuous monitoring for user defined files. Easy setting is available, the snap shot of settings is also been added. This settings field helps in changing the voice of the assistant, path of file given for monitoring, the phone number of the concerned user to whom the SMS is to be sent and name of the assistant used to activate him.

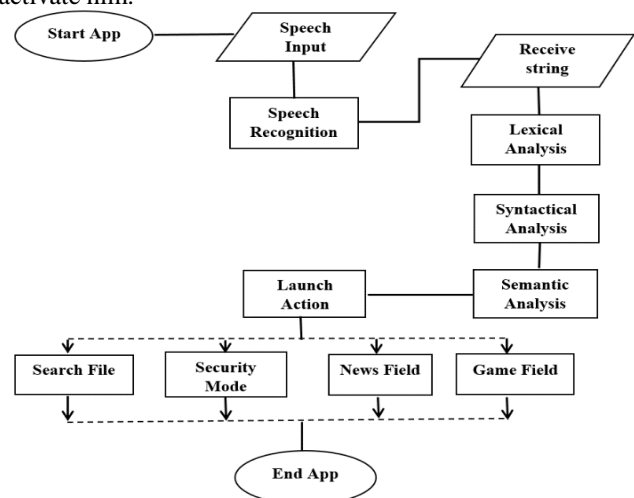


Figure 1. Dataflow diagram

Output from Personal assistant module

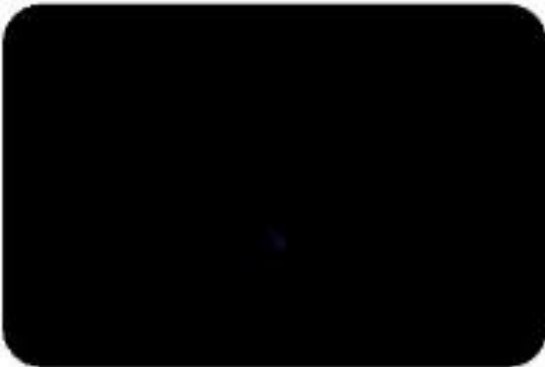


Figure 2. Personal assistant in inactive mode



Figure 3. Personal assistant in active mode

File security mode output

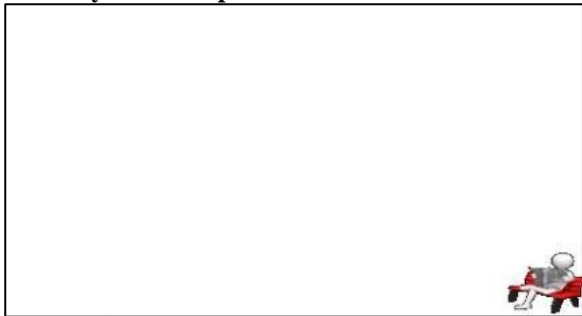


Figure 4. Continuous monitoring of files

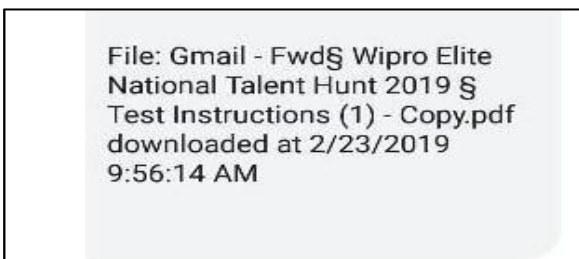


Figure 5. SMS received to the concerned mobile when a file is copied

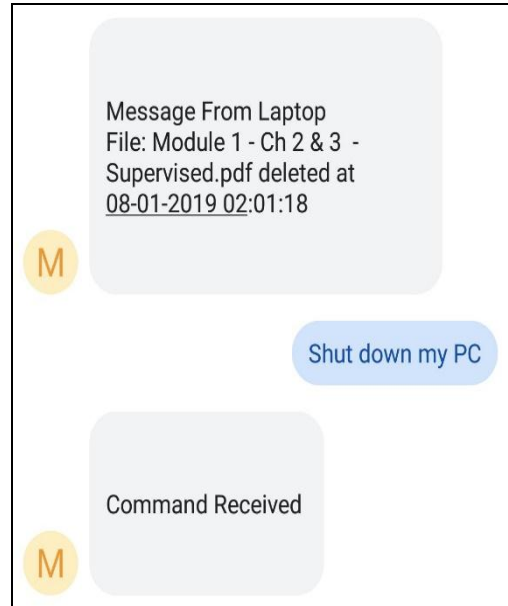


Figure 6. when a file is deleted, system is said to shut down by the user

Output for Game field

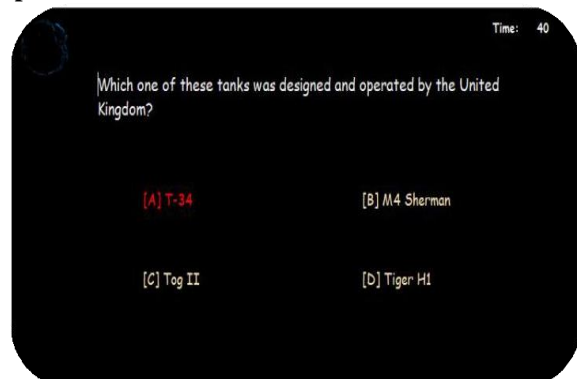


Figure 7. Marks the answer that is answered by the user

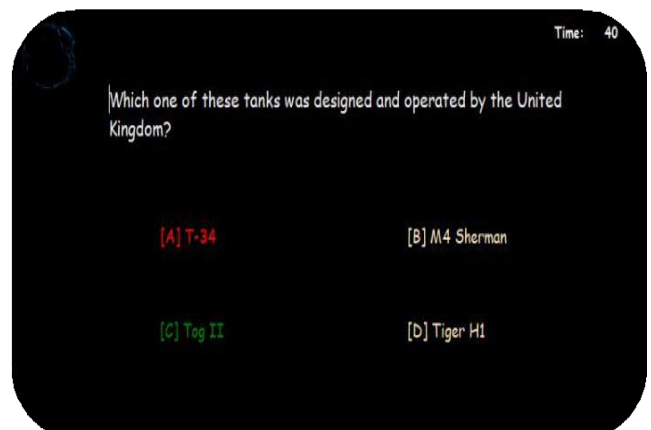


Figure 8. Marks the wrong as well as the correct answer

Output for News field

Figure 9. Shows the image along with the title of the news



Figure 10. Settings mode

V. CONCLUSION AND FUTURE SCOPE

The proposed system is simpler and easy to use. It has good security for files and an easier way to search any files. Searching for files is limited to user defined files. This application is designed to work without internet connection but, limitation is that optional modules (games field and news field) runs only if system is connected. This system's personal assistant module is built using basics of artificial intelligence but it can be upgraded by combining machine learning and neural network. In search file module we can provide access to files having .txt, .csv extensions rather than giving access only to folders that are on laptop. In file security mode, multiple paths can be provided at single time and by accessing camera we can capture the person who is viewing into our files.

REFERENCES

- [1] A. Nagdev, J. Panchal, H. Nanwani, H. Pawar, "File System Monitoring for Windows", International Journal of Computer Science and Mobile Computing, Vol. 7, Issue. 3, pp.88-91, 2018.
- [2] G.H. Kim, E.H. Spafford, "The design and implementation of tripwire: a file system integrity checker", ACM Conference, Indiana, 1994.
- [3] J.M. Boucqueau, "Digital Rights Management", IEEE, 2006-2012.
- [4] M.A. Raba bah, A.A. Marghilani, "Artificial Intelligence Technique for Speech Recognition Based on Neural Networks", Oriental Journal of Computer Science and Technology, Vol. 7, No. 3, 2014.
- [5] T.A. Al Smadi, "An Improved Real-Time Speech In Case of Isolated Word Recognition", International Journal of Engineering Research and Application, Vol. 3, Issue 5, pp. 1-5, 2013.
- [6] Y. Hen Hu, J.N. Hwang, "Handbook of neural network signal processing", CRC press, London, 2001. – 384c.
- [7] A. Hamid, O. Mohamed, A.-R., Jiang, H., and Penn, "Applying convolutional neural networks concepts to hybrid NN-HMM model for speech recognition", ICASSP, IEEE, pp. 4277–4280, 2012.
- [8] S.K. Gaikwad, B.W. Gawali, P. Yannawar, "A Review on Speech Recognition Technique", International Journal of Computer Applications, Vol. 10, No. 3, 2010.
- [9] M.A. Zissman, "Predicting, diagnosing and improving automatic language identification performance", Proc.Eurospeech97, Vol. 1, pp. 51-54, 1997.
- [10] G. Lalit, R. Bahl et al., "Estimating Hidden Markov Model Parameters so as to maximize speech recognition Accuracy", IEEE Transaction on Audio, Speech and Language Processing, Vol. 1, No.1, 1993.
- [11] G. Rogoll, "Maximum Mutual Information Neural Networks for hybrid connectionist-HMM speech recognition systems", IEEE Transaction on Audio, Speech and Language Processing, Vol. 2, No. 1, Part II, 1994.